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Holding device for a telephone

The invention relates to a holding device for a telephone according to the preamble of claim 1.

DE 197 55 621 A1 discloses a receptacle device for a mobile telephone. In said device, the mobile telephone is displaceably mounted on a carriage. The carriage is driven by an electric motor which moves it into a shaft and out of the shaft. It is disadvantageous here that the telephone is arranged in the carriage in an ergonomically disadvantageous way and is thus difficult to operate. In addition, the mobile phone cannot be accessed in an emergency, for example when the power supply fails.

DE 198 17 345 A1 discloses a vehicle console with a manually pivotable telephone holder. The telephone is covered in the receptacle position by a two-part cover. It is disadvantageous here that these consoles are not very convenient to operate since the cover and the mobile have to be activated separately for the purpose of pivoting.

The object of the present invention is to provide a holding device for a telephone, which device can be operated as conveniently as possible, protect the telephone and at the same time has a high level of operational reliability. The holding device the telephone is to convey a feeling of opulence and is to be esthetically attractive.

The object is achieved according to the invention by means of a holding device having the features of claim 1.

The holding device has a drive device with two drives which are embodied separately. The first drive drives a holding arm which secures the telephone, and the second drive drives a lid which closes off a storage compartment which receives the telephone. In the stowed position, the telephone is stowed safely in the storage compartment and protected against theft and/or soiling. The cover closes off the storage compartment securely and can be designed so as to be esthetically attractive on its outside, for example can have a leather covering and/or material covering and/or wooden surface. By means of the two drives, the telephone can be moved from the stowed position into the position of use and back in an automatically driven fashion which provides convenient operator control. In addition, the drive device has redundancy, and thus operational reliability, owing to the two separately designed drives.

There is provision for the drive device to have a control device which is designed to control the first and second drives. The movement sequence when the telephone is moved from the stowed position to the position of use and back can be controlled by means of the control device. In addition, the operational capability of the holding device can also be simplified by means of the control device, for example a single-button operator control may be provided. This means that in the stowed position and in the position of use in each case a press of a button or key is sufficient to actuate the drive device in order to move the telephone.

In one embodiment there is provision for the separate drives each to have different drive principles. As a result, the fail safety of the system is increased. The first drive can thus be designed as an electric drive and the second drive as a mechanical drive with an

energy accumulator. In one direction of movement, for example when moving from the stowed position into the position of use or back, the electric drive can charge the energy accumulator.

By virtue of the mechanical energy accumulator, a method for the telephone and/or the lid is possible even when the power fails. Since the telephone has its own power supply, it may be necessary to access the telephone particularly in emergencies. A drive can be designed to be free of self-locking so that the telephone or the lid can be moved by means of the second drive or manually even when the power fails.

In one embodiment there is provision for the drive device to have a locking device for locking the lid. As a result, the telephone can be stored securely and protected against theft in the stowed position.

In one embodiment there is provision for the holding arm to have mechanical receptacles and electrical connections for the telephone. As a result, the simple electrical connection of the telephone, for example to a hands-free device, is possible. The securing elements can also be used for bringing about stable mechanical securement to the mounting arm.

The telephone may be embodied as a permanently installed telephone or as a mobile telephone, for example GSM telephone or portable telephone. It is also possible to attach a display or a handheld PC or a keyboard to the holding arm instead of the telephone, or in addition to it.

The holding device can advantageously be used in vehicles, preferably in passenger cars. In this context, installation of the holding device in the cockpit area or in the center console is provided.

Further embodiments of the invention are illustrated and explained in the figures, in which:

Fig. 1 shows a holding device with a telephone in the stowed position and a closed lid,

Fig. 2 shows the holding device with the lid opened, and

Fig. 3 shows the holding device with the telephone in the position of use and the lid opened.

Figure 1 illustrates a holding device 16. It comprises a holding arm 1 to which a telephone 11 is secured, a lid 2, a drive device 3 with a spring motor 9 and electric motor 10, an attachment frame 4 and a control device 5. The control device 5 has sensors 6. The holding arm 1 is illustrated with the telephone in the stowed position. The telephone 11 is accommodated in a storage compartment 17 which is closed by the lid 2. The lid 2 is held in this closed position by means of a locking device 8 with a rotary-latch lock. A mechanical drive with a spring accumulator 9 and damper is connected to the lid 2 and acts on the lid 2 in the opening direction. The damper is embodied as a viscous brake and damps the opening movement of the lid 2. A switch 7 which is arranged on the outside of the lid 2 is activated in order to open the lid 2, i.e. ultimately to move the telephone into the position of use. The switch 7 is connected to the locking device 8 and to the control device 5. It unlocks the locking device 8, after which the lid is acted on in the opening direction by the spring 9 and its weight distribution. During the opening process, the mechanical drive 9 is decoupled from the electric drive 10. As a result, even when the electric drive 10 fails, it is ensured that the storage compartment 17 opens and access is provided to the telephone 11.

By means of the sensor system 6, the control device 5

detects the opened position of the lid 2 (illustrated in Figure 2) and actuates the electric motor 10 in order to move out the holding arm 1. After the position of use (illustrated in Figure 3) has been reached, the control device 5 switches the electric motor 10 off.

The electric drive 10 is connected to the lid 2 and thus to the mechanical drive 9 via a lever 12 and a connecting rod 13. At the end of the extension movement, the electric motor 10 acts on the lid 2 via an eccentric 14 and the lever 12 which is connected to it, with the result that the lid 2 closes somewhat. As a result, the gap between the lid 2 and the extended telephone 11 in the position of use is reduced. This improves the accessibility of the momentary contact switch 7 and/or the esthetics of the holding device.

In the position of use, the telephone 11 can be removed from the holding arm 1. Likewise, the telephone 11 can be used by means of a hands-free device while a passenger car is traveling.

The control device 5 monitors the extension movement of the telephone 11 by means of the sensors 6, for example by monitoring the current drawn by the electric motor 10. If the extension movement is prevented, for example as a result of jamming, the control device 5 reverses the drive 10 by a few millimeters and then switches off. After the obstruction has been removed, the extension process can be continued by activating the momentary contact switch 7 again.

The closing process is initiated by activating the momentary contact switch 7. The control device is embodied in such a way that the lid 2 is firstly opened to a maximum degree by the electric motor 10 by means of the lever 12 and the connecting rod 13 in this context. At the same time, the electric motor 10 drives

the holding arm 1 in the direction of the stowed position. The lid 2 remains in the opened position until the holding arm 1 is very largely retracted. After this, the electric motor 10 acts on the lid 2 in the closing direction and in doing so charges the spring accumulator 9.

In the stowed position, the electric motor 10 acts on the rotary-latch lock 8 and locks it via the eccentric 14. The sensor system 6 detects the end point of this movement and signals it to the control device 5 which then switches off the drive 10. Possible jamming is also monitored during the closing process by the control device 5 by monitoring the power drawn by the electric motor 10.

In the opened position, the lid 2 is protected against misuse by means of a damping element 15 by virtue of the fact that this damping element 15 takes up forces which occur owing to incorrect operator control. If these forces exceed a certain threshold there is provision for the lid 2 to run up onto a stop.